

REMARKS

The Office Action rejected claims 1-3, 5-10 and 12-33 and withdrew claims 34-36 from consideration as being directed to an invention not originally presented in the application. Applicants added new claims 37 and 38. Claims 1-3, 5-10 and 12-38 remain. Applicants respectfully request that the Examiner reconsider and withdraw the rejection and the restriction requirement.

Election/Restriction

The Office Action asserted a restriction requirement between Invention I, claims 1-3, 5-10 and 12-33, and Invention II, claims 34-36, as being independent or distinct inventions. The Office Action withdrew claims 34-36 from consideration since Applicants "received an action on the merits for the originally presented invention." As a result, the "invention has been constructively elected by original presentation." Applicants traverse the restriction requirement.

Rather than debating whether the Examiner can apply the "constructive election" doctrine in a first Office Action after a Request for Continued Examination, Applicants elect to pursue Invention I, claims 1-3, 5-10 and 12-33, with traverse.

The restriction requirement was improper and must be withdrawn. A restriction requirement must satisfy two criteria. First, the inventions must be independent or distinct. MPEP § 803. Second, a serious burden on the Examiner must exist. *Id.* Neither criterion exists.

The Examiner has not established that a serious burden exists. A serious burden may exist if the examiner can show a "separate classification," a "separate status in the art," or "a different field of search." *Id.* The Office Action failed to discuss any showing of a serious burden on the Examiner.

In addition, Applicants do not believe the inventions are independent or distinct. Applicants added new claims 37 and 38. These claims, which depend from independent claim 1, closely resemble independent claim 34. As such, Applicants do not believe the inventions are independent or distinct. Applicants request that the Examiner reconsider and withdraw the restriction requirement.

#### Claim Rejections - 35 USC § 103

The Office Action rejected claims 1-3, 5-10 and 12-33 as being unpatentable over U.S. Patent Number 6,394,793 to Bunge ("Bunge"). Applicant believes the rejection was improper and must be withdrawn. Specifically, Bunge fails to describe or to suggest all of the features of the claims.

With respect to claims, 1-3, 5-10 and 12-30, independent claims 1, 8 and 15 recite, *inter alia*, a step of "impingement cooling" and later define impingement cooling as a "subset of forced convection cooling that produces significantly higher heat transfer coefficients than the remainder of the forced convection regime."

The Office Action states that "it is the examiner's position that Bunge discloses impingement cooling because he uses a compression gas (equivalent to force [sic] convection) at different pressures wherein higher pressure produces a higher cooling rate (equivalent to higher heat transfer coefficient)." Applicants respectfully disagree. Taken to its logical end, such an assertion by the Examiner would mean that an infinite cooling rate could be achieved with a high enough pressure. That rate, however, is not achievable. In fact, an increase in pressure could reduce the cooling rate. Recall that paragraph 17 of the specification states that an object of the present invention is to provide a quenching technique that "can keep the cooling rate values within a limited range."

With respect to claims 31-33, independent claim 31 recites, *inter alia*, that the "cooling step produces heat transfer coefficients greater than those created by oil bath quenching." Bunge fails to disclose or to suggest such a feature. In fact, Bunge appears to suggest the opposite. Figure 4 of Bunge provides cooling rates for oil bath quenching, and Figure 5 of Bunge provides cooling rates for air quenching. The rates for oil bath quenching are higher than for air quenching. In light of the foregoing, Applicants request that the Examiner reconsider and withdraw the rejection.

#### Newly Added Claims

Applicants added new claims 37 and 38. Support for the newly added claims appears in the disclosure as originally filed. For example, support for claims appears in paragraph 60. Applicants assert that the newly added claims define inventions that are patentable over the cited references.

**Conclusion**

In light of the foregoing, Applicants submit that the claims are now in condition for allowance. Applicants request that the Examiner reconsider and withdraw the restriction requirement and rejection. Applicants solicit the allowance of Claims 1-3, 5-10 and 12-38 at an early date.

Applicants authorize the Commissioner to charge the \$36 fee ( $2 \times \$18 = \$36$ ) due under 37 CFR 1.16(c) for the presentation of two (2) additional claims, and any fee due under 37 CFR 1.16 or 17, or to credit any overpayments, during prosecution of this Application, to Deposit Account Number 21-0279.

Respectfully submitted,

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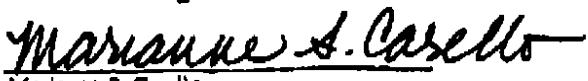
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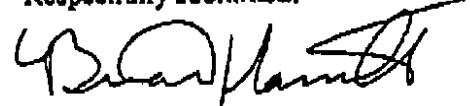
  
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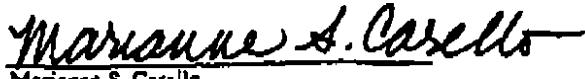


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